Happily there is already a tendency to drop many of these synonyms. Let it be hoped in favor of neurocyte, neurite and dendrite, as being the least cumbersome and more in harmony with other words denoting a part, as, somite, sternite, tergite, phagocyte, etc., or as already, as in the case of neurocyte, having been thought by good authority sufficiently common to be given a place in popular dictionaries.

This terminology, however, seems to be insufficient for the needs of the study of the arthropod nervous system, where the part of the neurocyte containing the nucleus is situated on the outside of the nervous system and connected with the branching portions of the neurocyte by a stalk or process of greater or less length. It has always seemed misleading and more or less cumbersome to speak of this portion as the nerve cell, the cell, or the cell body. For this reason it appears that, to be in harmony with the other terms noted, that part of the neurocyte that in the older literature is called the nerve cell should be denominated the neurocyto-somite, or, more briefly, cytosomite. Such a term will not be misleading, nor, since it is a compound of frequently used particles, will it be difficult to retain.

In writing or speaking of the process just mentioned originating from an arthropod or spinal ganglion cell it has frequently seemed as though time and energy might be economized by giving this also a distinctive name. Instead of referring to a process from a neurocyte, neurocytic process, or a bundle of processes from such and such cells, it would be much better to use the word neurocytocaulite, or, briefly, caulite, which, along with cytosomite, is here suggested. It matters little whether some one may be able to show that caulite has, as seems probable, been used before in connection with some other subject, for it denotes a part, and the context in which it is used will prevent misconception. Should, however, a possibility of misconception arise, the difficulty may be readily overcome by using the form cytocaulite.

Summarizing the foregoing, the following morphological definition may be given a neurocyte: A cellular element of the nervous system, consisting of a cytosomite containing the nucleus and, with or without a caulite connecting it with the remainder of the neurocyte, with a neurite or neurites, performing the one neural function of discharging neural impulses, and with a dendrite or dendrites functioning usually as the recipients, sometimes, also, as dischargers of neural impulses.

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RETINAL IMAGES AND BINOCULAR VISION.

IN SCIENCE of March 11th Professor Stevens added some valuable observations to the facts reported by me in an earlier (February 25th) issue. He has objected to my title 'Binocular Factors in Monocular Vision' on the ground that "the essential characteristic of binocular vision consists in the simultaneous formation of slightly dissimilar images on the two retinas, with corresponding modification of the perception of depth in space." The criticism is more than a merely verbal one and the facts reported assume entirely different aspects as the one position or the other is taken.

It is doubtless true that complete perception of objects depends in large measure on the presence of such slightly different images on the two retinas. But it is also true that even in such cases of complete perception there are sensation factors derived from the movements of both the external muscles of the eyes and the internal ciliary muscles. When the retinal image of one eye is withdrawn, does it follow that these other factors are also withdrawn? Evidently not. On the contrary, there is good reason to believe that so-called monocular vision is complicated by the presence of muscle-sensations from the closed eye. The first question to be raised and answered, then, is the question of the character of the movements which are the sources of these sensations. This was the question taken up in the first paper. Its results were applied directly to the solution of the main problem, namely, what are the binocular factors in so-called monocular vision? The double images, which are, as Professor Stevens very properly points out, monocular phenomena, were made use of in this experiment merely for the purpose of dis-

covering the position of the closed eye. The various cases tested by the method described led to the conclusion 'that the closed eye follows the open eye to a certain extent, and to a certain extent obeys its own tendencies of relaxation.' These facts, together with the changes in accommodation pointed out, may be made use of to explain some of the differences between ordinary vision and vision with a single eye, as, for example, the fact that an object seen with one eye looks farther away and smaller.

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SCIENTIFIC LITERATURE.

Lehrbuch der vergleichenden mikroskopischen Anatomie der Wirbelthiere. Von Dr. med ALBERT OPPEL. Zweiter Theil. Schlund und Darm. Jena, Gustav Fischer. 1897. Price, 20 Marks.

The second part of Professor Oppel's storehouse of facts is a valuable addition to our literature on microscopic anatomy and is to be classed with books of the calibre of Minot's Embryology. It is a handsome volume of 682 pages, 343 text figures and four lithographic plates. In addition to an exhaustive review of all the literature on the œsophagus and intestines (the stomach having been considered in the first volume), it gives a list of the scientific names of the animals, a classification of the vertebrates, a list of all the references, an index of the authors and a complete index of its contents. All in all, it is a hand book of the microscopic anatomy of the œsophagus and intestines.

In general he states that the intestinal canal is always composed of the following layers:

1. A mucosa covered with a layer of epithelium. This, in turn, is divided into the true mucosa and the submucosa, between which there is usually a muscularis mucosæ, and less frequently an additional layer lying upon the muscularis mucosæ, the stratum compactum.

2. A muscularis, usually composed of an inner circular and an outer longitudinal layer.

3. An adventitia, often poorly developed, and towards the body cavity (cœlom) covered with a layer of flat endothelium, the serosa.

After giving the above very general classification of the layers in order to adapt them to all the classes of vertebrates, Oppel states that the following are the important layers:

1. Epithelium.
2. Tunica propria of the mucosa.
3. Stratum compactum.
4. Muscularis mucosæ, circular and longitudinal layers.
5. Submucosa.
6. Circular muscle,
7. Longitudinal muscle, } or muscle layers.
8. Subserosa.
9. Serosa.

These layers in turn are bound together by glands growing in from the epithelium, blood-vessels, lymphatics and nerves. In general, under the above headings he discusses the whole subject, each time giving the variations corresponding to the order of the families of the vertebrates. Throughout the work most extensive use is made of the literature and nearly all of the figures are borrowed, but they have been carefully redrawn.

After the chapter on the œsophagus the epithelium of the intestine is taken up (pp. 160–232), giving the history of its discovery, and its appearance in animals from amphioxus to man. Then are discussed such subjects as the striated border, cell membrane, intercellular bridges, relation of the epithelial cells to the connective tissues, basement membrane, regeneration and goblet cells. Under intercellular bridges it is interesting to note that sufficient data have been collected to state that the bridges do exist, and it is prophesied that future investigation will fully corroborate this view.

The regeneration of the epithelial cell is discussed under the heading 'Bizzozero's theory.' Bizzozero's observation is that the epithelial cells at the bases of Lieberkühn's crypts are constantly dividing to re-establish the cells of the villi. In order to do this the cells must be shifting constantly from the bases of the crypts towards the tips of the villi. This, according to Oppel, is very unlike regeneration in other organs, and, if true, will lead to the conclusion that the crypts are not glands, but only growing points for the cells covering the villi. It appears to us unfortunate that Oppel does